Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

5   1.   (currently amended) An angle measuring gyroscope which measures <u>angular position arising from</u> a full angle of angular motion comprising:

a substrate having a first surface;

a first movable drive mass coupled to the substrate<u>, movable in two orthogonal directions</u>;

10   a second movable slave mass<u>, movable in two orthogonal directions</u>;

two sets of orthogonal drive electrodes coupled to the drive mass <u>to drive the drive mass in two orthogonal directions</u> and defined in a plane above the substrate;

two sets of orthogonal sense electrodes coupled to the slave mass <u>to sense movement of the slave mass in two orthogonal directions</u> and defined in the same plane

15   as the drive electrodes; and

a <u>two-degree of freedom</u> suspension coupling the drive mass to the slave mass, the suspension restricting the range of motion of the drive mass to maintain movement of the drive mass within a linear regime, while allowing amplification of movement of the slave mass with respect to the drive mass.

20   2.   (original) The angle measuring gyroscope of claim 1 further comprising a control means for maintaining oscillation of the slave mass without <u>interfering</u> interfere with the

measured precession pattern of the slave mass, the control means being coupled to the sense and drive electrodes.

3.   (original) The angle measuring gyroscope of claim 2 where the control means drives the slave mass at a constant amplitude at a first resonant frequency of the gyroscope.

4.   (currently amended) The angle measuring gyroscope of claim 1 where the dynamic motion of the drive mass and slave mass are substantially decoupled from each other.

5.   (currently amended) The angle measuring gyroscope of claim 3 where the first resonant frequency of the gyroscope corresponds to the a first slave mass deflection peak.

6.   (original) The angle measuring gyroscope of claim 5 where the first resonant frequency is approximated as the first system eigenfrequency $\tilde{\omega}_1$.

7.   (currently amended) The angle measuring gyroscope of claim 1 where the gyroscope has a characterizing geometry defining the manner in which it is laid out on the substrate and where the drive mass is an outer drive mass and the slave mass is an inner slave mass as defined by the layout geometry of the gyroscope.

8.   (currently amended) The angle measuring gyroscope of claim 1 where <u>the</u>
<u>gyroscope has a characterizing geometry defining the manner in which it is laid out on</u>
<u>the substrate and where </u>the drive mass is an inner drive mass and the slave mass is an
outer slave mass as defined by the ~~layout~~ geometry of the gyroscope.

5   9.   (original) The angle measuring gyroscope of claim 1 where the drive mass is
fabricated to lie in a plane and has at least one window defined therein, and where the
drive electrodes are disposed in the at least one window and in the plane of the drive
mass.

10.   (original) The angle measuring gyroscope of claim 1 where the slave mass is
10   fabricated to lie in a plane and has at least one window defined therein, and where the
sense electrodes are disposed in the at least one window and in the plane of the slave
mass.

11.   (original) The angle measuring gyroscope of claim 9 where the slave mass is
fabricated to lie in a plane and has at least one window defined therein, and where the
15   sense electrodes are disposed in the at least one window and in the plane of the slave
mass.

12.   (original) The angle measuring gyroscope of claim 1 where the sense and drive
electrodes each have a gap spacing between adjacent electrodes, and where the gap

spacing for the sensing electrodes is greater than the gap spacing for the drive electrodes.

13.   (original) The angle measuring gyroscope of claim 2 where the control means generates an output position and velocity signal of the slave mass and feeds back the

5   output position and velocity signal to generate a control signal applied to the drive electrodes and hence to the drive mass to maintain motion of the slave mass at a constant energy state.

14.   (currently amended) The angle measuring gyroscope of claim 13 where the control means maintains motion of the slave mass at a~the constant energy state by

10   injecting additional energy into the drive mass at a first resonant frequency of the gyroscope, resulting in a dynamically amplified slave mass.

15.   (original) The angle measuring gyroscope of claim 2 where the control means feeds back the output position and velocity signal to generate a control signal applied to the drive electrodes without interfering with a Coriolis induced precession pattern of the

15   slave mass.

16.   (currently amended) A method of operating an angle measuring gyroscope which measures <u>angular position arising from</u> a full angle of angular motion comprising:

driving a first movable drive mass in two orthogonal directions with drive

electrodes coupled to the drive mass and defined in a plane;

coupling the motion of the drive mass to a second movable slave mass through a

two-degree of freedom suspension coupling between the drive mass and the slave

5   mass, the suspension restricting the range of motion of the drive mass to maintain

movement of the drive mass within a linear regime, while allowing amplification of

movement of the slave mass in two orthogonal directions with respect to the drive mass;

and

sensing motion of the slave mass in two orthogonal directions with sense

10   electrodes coupled to the slave mass and defined in the same plane as the drive

electrodes.

17.   (currently amended) The method of claim 16 further comprising maintaining

oscillation of the slave mass by means of control of the sense and drive electrodes

without interfering with the measured precession pattern of the slave mass.

15   18.   (original) The method of claim 17 where maintaining oscillation of the slave

mass without interfere with the measured precession pattern of the slave mass

comprises driving the slave mass at a constant amplitude at a first resonant frequency

of the gyroscope.

19.   (currently amended) The method of claim 16 further comprising ~~substantially~~

decoupling the <u>dynamic motion of the</u> drive mass and slave mass from each other.

20.   (currently amended) The method of claim 18 where driving the slave mass at a

constant amplitude at a first resonant frequency of the gyroscope comprises driving the

5   slave mass at ~~the~~ <u>a</u> first slave mass deflection peak.

21.   (original) The method of claim 20 where driving the slave mass at the first slave

mass deflection peak comprises driving the slave mass at a first system

eigenfrequency $\tilde{\omega}_1$.

22.   (currently amended) The method of claim 16 where <u>the gyroscope has a</u>

10   <u>characterizing geometry defining the manner in which it is laid out on the substrate and</u>

<u>where</u> driving the drive mass comprises driving an outer drive mass and where sensing

the slave mass comprises sensing an inner slave mass as defined by the ~~layout~~

geometry of the gyroscope.

23.   (currently amended) The method of claim 16 where <u>the gyroscope has a</u>

15   <u>characterizing geometry defining the manner in which it is laid out on the substrate and</u>

<u>where</u> driving the drive mass comprises driving an inner drive mass and sensing the

slave mass comprises sensing an outer slave mass as defined by the ~~layout~~ geometry

of the gyroscope.

24.   (original) The method of claim 16 where the drive mass is fabricated to lie in a plane and has at least one window defined therein, and where driving the drive mass with the drive electrodes comprises driving drive electrodes in the plane of the drive mass, which drive electrodes are disposed in the at least one window.

5   25.   (original) The method of claim 16 where the slave mass is fabricated to lie in a plane and has at least one window defined therein, and where sensing the slave mass with the sense electrodes comprises sensing the slave made in the plane of the slave mass, which slave electrodes are disposed in the at least one window.

26.   (original) The method of claim 24 where the slave mass is fabricated to lie in a 10   plane and has at least one window defined therein, and where sensing the slave mass with the sense electrodes comprises sensing the slave made in the plane of the slave mass, which slave electrodes are disposed in the at least one window.

27.   (original) The method of claim 16 where the sense and drive electrodes each have a gap spacing between adjacent electrodes, further comprising a gap spacing for 15   the sensing electrodes is greater than the gap spacing for the drive electrodes.

28.   (original) The method of claim 17 further comprising generating an output position and velocity signal of the slave mass and feeding back the output position and velocity signal to generate a control signal which is applied to the drive electrodes and

hence to the drive mass to maintain motion of the slave mass at a constant energy state.

29.   (currently amended) The method of claim 28 further comprising maintaining the motion of the slave mass at the a-constant energy state by injecting additional energy

5   into the drive mass at a first resonant frequency of the gyroscope, resulting in a dynamically amplified slave mass.

30.   (original) The method of claim 17 where feeding back the output position and velocity signal generates a control signal applied to the drive electrodes without interfering with a Coriolis induced precession pattern of the slave mass.